

DEMANDS

1. The invention relates to a clamp for automated welding installations, the type that comprises a body bearing fixed and mobile arms which are used to hold two or more sheets to be handled during welding. The invention has a pneumatic cylinder for activating the mobile arms of the clamp, which is characterized in that the aforementioned body takes the form of a central tubular element having two opposing lateral plates welded to the lower part thereof, in order to support the articulated arm disposed at the centre of the ensemble of the clamp between the lateral plates supporting the articulation shaft.
2. Clamp for automated welding installations, according to demand 1, characterized because the central tubular element of the body of the clamp is constituted from a calibrated tube with lateral millings at the lower end so as to support opposing lateral plates partially fitted which are joined to the tubular element by welding.
3. Clamp for automated welding installations, according to demand 1, characterized because the opposing lateral plates of the body of the clamp are constituted by calibrated steel
4. Clamp for automated welding installations, according to demand 3, characterized because the opposing lateral plates of the body of the clamp are cut out and their openings are
5. Clamp for automated welding installations, according to demand 1, characterized because the opposing lateral plates of the body of the clamp present lightening openings, orifices for assembling the articulation shaft of the mobile arm of the clamp and elongated holes
6. Clamp for automated welding installations, according to demand 1, characterized because the mobile arm of the clamp takes an L-shaped position and presents on its internal end an orifice for the transverse shaft that causes the arm to turn. This said mobile arm is assembled between the lateral plates of the body of the clamp and an elongated hole

in order to receive the activation roller, which is joined to the rod of the pneumatic cylinder that activates the clamp. The elongated hole of the arm presents a straight inferior area and a gently curved upper area to cause the progressive variation of the angle of incidence between the transverse shaft activating the swing arm and the elongated hole of this arm, and thus the straight area

7. Clamp for automated welding installations, according to demand 1, characterized because the gap between the two plates assembled in opposite sides of the body of the clamp is covered on its free lower and rear part by a metal band fitted together on it. This metal band is provided with a longitudinal opening in which the mobile arm of the clamp passes. A second metal band, shorter, is combined with this mobile arm and it coincides with the internal side of the first metal band so that it covers the movable closing of its longitudinal opening, in accordance with the positions of the mobile arm.

8. Clamp for automated welding installations, according to demand 1, characterized because the pneumatic cylinder that activates the mobile arm of the clamp is lodged inside the tubular element of the body of the clamp between each of the upper and lower fixed covers, tightened in relation to the said tubular element, by means of cylindrical casing joined to these upper and lower covers and provided with a light interstice with regard to the internal side of the tubular element. This interstice is used as a passage of air connecting the upper with the lower parts of the cylinder, in which inside a piston associated with the rod activating the mobile arm of the clamp slides.

9. Clamp for automated welding installations, according to demand 8, characterized because the upper cover of the pneumatic cylinder presents a central axial lodging with a lower cylindrical area higher in diameter capable of receiving the top head of the bolt combining the piston with the piston rod that activates the mobile arm, in the upper deadlock position of the piston.

10. Clamp for automated welding installations, according to demand 8, characterized because the element fastening the piston to the piston rod that activates the mobile arm presents, in its upper part, an expansion that can fit inside the axial orifice of the upper

cover of the pneumatic cylinder. Consequently, there is a pneumatic shock absorber effect together with an air outlet with restricted and adjustable flow.

11. Clamp for automated welding installations, according to demand 8, characterized because the upper cover of the cylinder that activates the mobile arm presents, moreover, an air cavity that can connect with the upper part of the cylinder through a smaller-diameter orifice and with the interstice between the cylinder casing and the tubular element of the body through a lateral flow.

12. Clamp for automated welding installations, according to the aforementioned demands, characterized because detection of the angular position of the mobile arm is executed by

13. Clamp for automated welding installations, according to demands 1 and 12, characterized because the sensor housing that detects the angular turning position of the mobile arm fits together with the rear side of the ensemble of the clamp, opposite to the fastening screws of the clamp itself.

14. Clamp for automated welding installations, according to demand 1, characterized by the position of a coupling which is combined with recesses and projections between the body of the clamp and the bracket that fastens this clamp to the structure of the grip or welding tool, and thus it is determined a fixed spatial position between both the body of the clamp and the structure of the grip or welding tool, independently of the assembly and dismantling operations of the clamp with regard to the welding machine.

15. Clamp for automated welding installations, according to demand 14, characterized because the coupling between the body of the clamp and the bracket that fastens this clamp to the grip or welding tool is made through a lodging on the bracket. This lodging is combined in shape and can fit with the top edge of the body of the clamp.

16. Clamp for automated welding installations, according to demand 1, characterized because the closure of the lateral plates of the body of the clamp is made with each of the

calibrated covers that coincide onto the external sides of these said plates in an adjusting and compact way with no tightness auxiliary components.

17. Clamp for automated welding installations, according to demand 1, characterized by the unit setting-up of the body of the clamp. This unit comprises the body of the drive pneumatic cylinder at the lower part and, at the upper part, a prismatic and straight in shape body provided with a wide transverse recess opened at the top in order to lodge a fitted turning arm, which is planned to move the mobile mounting bearer of fastening screws. Thus, this turning arm is lodged in this transverse opening, closing the upper part of the clamp itself in order to prevent welding splashes and other scraps from going in. The sides of this said recess presents each of the longitudinal half-rod guides with each of the straight passing openings planned to receive the ends of the drive shaft of the turning arm through needle bearings.

18. Clamp for automated welding installations, according to demand 17, characterized for comprising the position of orifices in the body of the clamp, provided with layered lodgings in their mouths so as to receive projecting guide bushings to centre the accessories that bear fastening screws.